A. New Hope Creek Corridor

5. STAGECOACH ROAD BOTTOMLANDS

SITE DESCRIPTION

County: Durham
Quad: Southwest Durham
Significance: Zoological: County (DURH 1); Botanical: 1 - County
Landscape Function: Zoological: Medium (DURH 1)
Boundary Integrity: High
Level of Threat: Zoological: Low; Botanical: 2 - Low
Protection Status: Medium
Community Viability: Zoological: Medium (DURH 1); Botanical: 3 - High

SUMMARY OF SIGNIFICANT FEATURES:

1. Links the New Hope Creek Wildlife Corridor to the gamelands around the northern end of Jordan Lake.
2. Historic location for several species of regionally rare species, including the flier sunfish (*Centrarchus macropterus*), bluespotted sunfish (*Enneacanthus gloriosus*) and swamp darter (*Etheostoma fusiforme*).
3. Provides habitat for several species of animals requiring large tracts of bottomland hardwoods.

LANDSCAPE FEATURES:

Extending approximately 1.25 miles from Stage Coach Road to Jordan Lake, this tract of bottomland is the least fragmented of any section along New Hope Creek. No powerlines or sewerlines divide it, nor are there any subimpoundments downstream from Stage Coach Road. At its lower end, below the confluence with Little Creek, the bottomland expands to 1.3 miles, and the forests on its slopes are confluent with the gamelands surrounding the northern end of Jordan Lake. Continuous forested passages connect this area with other large tracts of undeveloped land, including New Hope Point, the Morgan Creek Bottomlands and the Northeast Creek Bottomlands, all described in the Chatham County Inventory (Hall and Boyer, 1993).

As is true for the other tracts of Triassic Basin bottomlands along New Hope Creek, the main channel is highly meandering and backwaters, oxbows, side channels and floodplain pools are present over the entire width of the floodplain. Although the causeways and subimpoundments upstream greatly impede the downstream flow of floodwaters, this tract is still flooded from slope to slope fairly frequently. Water marks are visible on the trunks of trees throughout the floodplain, and old pieces of styrofoam, plastic soft drink bottles and other flood

debris commonly wash up along the base of the abandoned railroad grade that runs along the eastern slope above the floodplain. During flood events, this tract is essentially an arm of Jordan Lake. In contrast to the subimpoundments, however, this tract dries up quickly enough to support grasses and other herbaceous species, at least in small patches.

DESCRIPTION OF THE FAUNA:

Several predominantly Coastal Plain species have been recorded in the lower reaches of New Hope Creek, including the flier sunfish (*Centrarchus macropterus*), bluespotted sunfish (*Enneacanthus gloriosus*) and swamp darter (*Etheostoma fusiforme*) (Menhinick, 1991). As mentioned for the New Hope Subimpoundments, however, the poor water quality in this reach may have reduced or eliminated these species, despite the continued presence of their preferred habitat of old oxbows and sluggishly flowing streams. Native mussels are completely missing from this section, and the absence of even the Asiatic clam (*Corbicula fluminea*) is a particularly strong indication that there are chronic water problems in this reach.

Another important factor that may contribute to the decline of the distinctive small fish fauna in this part of the creek is the frequent backup of water from Jordan Lake. This opens up the entire basin, including otherwise isolated oxbows and pools, to the depredations of game fish stocked at Jordan Lake, including largemouth bass, white crappie and channel catfish (Alvin Braswell, pers. comm.). In this reach, the presence of the subimpoundment dam above Stage Coach Road may exacerbate this problem by blocking the escape of smaller fish upstream into shallower waters.

While more study is needed to confirm the effect on the fish native to this bottomland, the impact on bottomland salamanders is quite obvious. None of the pools surveyed in three trips to this bottomland contained larvae of either marbled salamanders (*Ambystoma opacum*) or spotted salamanders (*Ambystoma maculatum*), both of which would be expected to occur in this habitat. The presence of mosquitofish (*Gambusia affinis*) in nearly all of these pools provides a clear explanation for their absence. In recent years Dave Owen has found numerous adults of both species of salamanders on the banks in this area.

Under these circumstances, four-toed salamanders (*Hemidactylium scutatum*) are even less likely to occur, despite their presence upstream (see New Hope Creek Bottomland Forest) and the existence of many of the moss-banked pools they need for nesting. About the only amphibians that can be expected to remain in the area are the five species of frogs and toads that were observed (plus a few that weren't seen). The larvae of these species are either more resistant to fish predation or can survive in the shallow pools located along the floodway fringe (*Ambystoma* larvae, in contrast, require deeper and longer-lasting pools).

The most significant component of the fauna in this bottomland is the avian community, which in contrast to the salamander community, is largely intact. Only the Kentucky warbler (*Oporornis formosus*) is missing from the group of typical bottomland species. This ground-nester may be absent either directly as a result of flooding or indirectly due to the poor quality of the herbaceous ground cover.

Eight other species of warblers were recorded, however, including the prothonotary warbler (*Protonotaria citrea*), which is highly characteristic of mature hardwood swamp forests and the American redstart (*Setophaga ruticilla*), which also requires wide tracts of bottomland hardwoods (although not necessarily mature stands). Along with the prothonotary warbler, five other species were recorded that need large trees to accommodate their nests: red-shouldered hawk (*Buteo lineatus*), barred owl (*Strix varia*), hairy woodpecker (*Picoides villosus*), pileated woodpecker (*Dryocopus pileatus*) and white-breasted nuthatch (*Sitta carolinensis*). The red-shouldered hawk, barred owl and pileated woodpecker are also among the best indicators of the extensive nature of this bottomland forest.

Evidence for the occurrence of other wide-ranging species, particularly bobcat (*Lynx rufus*) and wild turkey (*Meleagris gallopavo*), was not obtained, however. Both of these species were expected in this tract, based on their presence along Morgan Creek and other parts of the gamelands around the northern rim of Jordan Lake (Sather and Hall, 1988; Hall and Boyer, 1993). Although more field work is needed to verify this finding, the absence of these species throughout most of the New Hope Bottomlands appears to be quite real. Possible explanations include the frequent flooding of this tract coupled with the lack of large areas of undisturbed upland habitats adjoining the bottomlands, or the significant habitat fragmentation that has resulted from the construction of I-40 and the waterfowl subimpoundments.

DESCRIPTION OF THE FLORA:

The forest in these bottomlands is composed primarily of hardwoods, with most trees ranging between 10" - 15" in diameter; large oaks over 3' in diameter are also present. Loblollies predominate on the slopes, and there are scattered stands of mature loblollies (2' dbh) in parts of the floodplain. Old drainage ditches, remnant strands of barbed wire, ancient oaks with spreading basal branches and persimmons that reach the canopy in a few areas all indicate that large parts of this tract were once cleared, probably for pasture. Rotted-out stump holes are also common over much of the area, evidence that the area was selectively timbered for pine in the recent past. In 1995 and 1996, selective logging was done along the creek as "wild turkey restoration habitat."

Spring wildflowers are present in fair numbers on the higher areas of the floodplain and along the creek banks. The oxbows, side channels and pools support the usual emergent species, lizard's tail (*Saururus cernuus*), arrow-leaf (*Peltandra virginica*), and duck potato (*Sagittaria latifolia*).

PROTECTION STATUS AND THREATS:

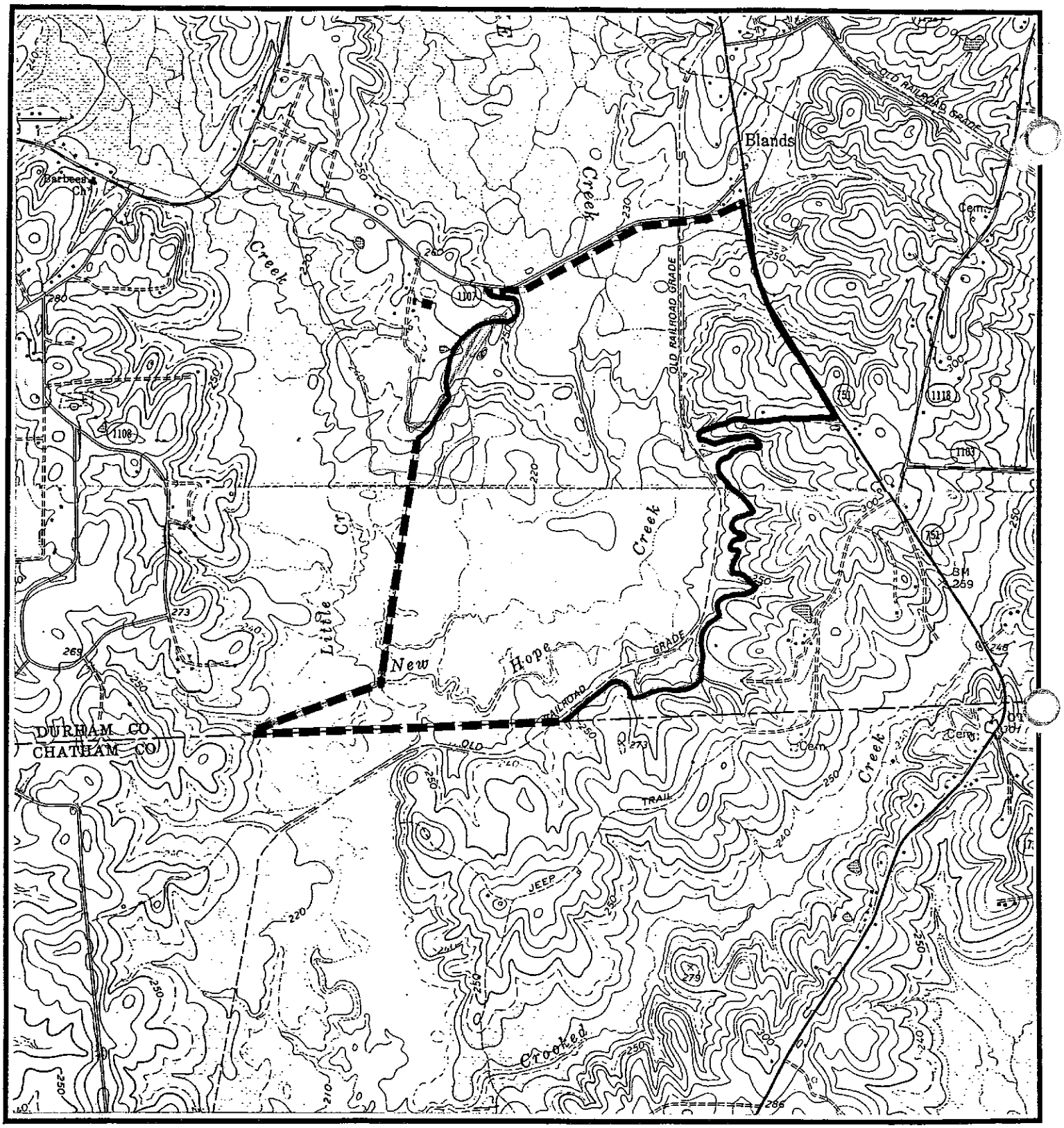
The entire bottomland and lower adjoining slopes are owned by the Corps of Engineers and are leased to the NC Wildlife Resources Commission as gamelands. Although this property is maintained for wildlife, most of the active management is directed towards only a small number of game animals, particularly deer, wood duck, quail and other species that benefit from the creation of openings. Timbering, including clearcuts, are considered consistent with these management goals, even though it reduces the value of the habitat for the majority of the non-game species native to these bottomlands.

With the exception of the gameland area on New Hope Point, which adjoins the New Hope Floodplain to the west below the Chatham County line, the surrounding uplands are all privately owned. Although most of this countryside is still rural, the growing recreational use of Jordan Lake along with the increasing urbanization of this region spurred by the Research Triangle Park will lead to more intense development of the area.

CONSERVATION RECOMMENDATIONS:

There is probably little that can be done to restore the natural hydrology of this particular tract, but the Corps and NC Wildlife Resources Commission should be urged to manage the area for all of its native wildlife, not just the game species.

The main conservation effort should be to preserve upland buffers along the adjoining areas of private lands. These will become increasingly important as the area becomes more developed, particularly given the frequent flooding that inundates this tract from slope to slope. Conservation easements are probably the most suitable means of assuring protection for the buffer areas; farming and selective timber harvesting could be compatible land uses within the easements, provided that runoff into the bottomlands is controlled.



DURHAM COUNTY MERGED INVENTORY

Stage Coach Road Bottomlands

SITE BOUNDARY

ADJACENT TO OTHER SITE(S)

USGS QUAD: SOUTHWEST DURHAM & GREEN LEVEL

N

SCALE: 1" = 2000feet - 1:24,000

2000 1500 1000 0 2000

ZOOLOGICAL SURVEY REPORT

I. LOCATION

USGS Quad: Southwest Durham, Green Level

Site Boundaries: Primary boundary includes bottomlands and adjoining slopes on both sides of New Hope Creek, from the subimpoundment at Stagecoach Road to Jordan Lake. Secondary boundaries include woodlands and disturbed habitats on the adjoining uplands.

Relationship to Previous Inventory Sites: Not included in previous inventories

II. TERRESTRIAL HABITATS

NHP Element Species:

None

Regionally Rare Species:

None

Indicator Guilds:

Forest Interior Species:
Buteo lineatus
Coccyzus americanus
Strix varia
Picoides villosus
Dryocopus pileatus
Empidonax virescens
Polioptila caerulea
Hylocichla mustelina
Vireo flavifrons
Vireo olivaceus
Parula americana
Setophaga ruticilla
Protonotaria citrea
Seiurus aurocapillus
Seiurus motacilla
Wilsonia citrina
Piranga olivacea
Bufo americanus
Hyla chrysoscelis
Pseudacris triseriata
Anthocharis midea
Actias luna

Forest/Edge Species:
Didelphis virginiana
Scalopus aquaticus
Sciurus carolinensis
Peromyscus leucopus
Ochrotomys nuttalli
Procyon lotor
Odocoileus virginianus
Butorides striatus
Colinus virginianus
Melanerpes erythrocephalus
Melanerpes carolinus
Picoides pubescens
Colaptes auratus
Myiarchus crinitus
Cyanocitta cristata
Parus carolinensis
Parus bicolor
Sitta carolinensis
Thryothorus ludovicianus
Dendroica dominica
Dendroica pinus
Cardinalis cardinalis
Pipilo erythrophthalmus
Carduelis tristis
Bufo woodhousei
Erynnis juvenalis
Papilio glaucus
Celastrina ladon

Long-Distance Migrants:
Coccyzus americanus
Empidonax virescens
Myiarchus crinitus
Polioptila caerulea
Hylocichla mustelina
Vireo flavifrons
Vireo olivaceus
Setophaga ruticilla
Protonotaria citrea
Seiurus aurocapillus
Seiurus motacilla
Wilsonia citrina
Piranga olivacea

Low-nesting Species:
Colinus virginianus
Seiurus aurocapillus
Seiurus motacilla
Wilsonia citrina
Cardinalis cardinalis
Pipilo erythrophthalmus

Big-tree/Snag Species:
Buteo lineatus
Strix varia
Picoides villosus
Dryocopus pileatus
Sitta carolinensis
Protonotaria citrea

Wide-ranging Species:
Buteo lineatus
Strix varia
Dryocopus pileatus

Carnivores/Raptors:
Procyon lotor
Buteo lineatus
Strix varia

Human-sensitive Species:
Colinus virginianus

Non-forest Species:
Corvus brachyrhynchos
Quiscalus quiscula

Invaders:
Canis familiaris

Habitat Features:

Total Site: 760 acres
Size of Primary Area: 688 acres
Habitat Heterogeneity: Moderate; east- and west-facing slopes; ravines; oxbows and other floodplain pools
Forest Structural Diversity: Moderate; well-developed canopy and subcanopy; shrub layer moderate -- thickets of cane and privet in some areas; herb layer poor
Water Sources: Perennial stream; intermittent tributaries; floodplain pools
Amphibian Breeding Sites: Frog choruses observed in small floodplain pools, but *Ambystoma* larvae were not observed; most pools in the floodplain contain *Gambusia*.
Denning Sites: Slopes bordering floodplain; beaver lodge observed at one site.
Big Trees/Large Cavities: Big trees are scattered throughout the floodplain.
Snags and Logs: Moderately present; some are large enough to allow passage over the creek.
Mast-producing Species: Oaks, hickories, maples
Nectar Sources: Marginal

Landscape Features:

Refuge Shape: Broadly oblong, following floodplain and adjoining slopes
Refuge Integrity/Fragmentation: Old railroad grade provides access along eastern side.
Proximity to Other Refuges/Existence of Corridors: Contiguous downstream with other tracts of New Hope Gamelands located at north end of Jordan Lake, including a large undeveloped upland peninsula (New Hope Point); contiguous upstream, except for road-crossings and subimpoundments, with other large tracts of undeveloped riparian forest in the New Hope and Third Fork Creek floodplains

Threats and Disturbances:

Evidence of Past Land Uses: Old barbed-wire fencing; drainage ditches; remnant pasture trees (including persimmons reaching into the canopy layer)
Level of Human Intrusion: Low to moderate; area is used as Gamelands, and fishing is frequent at Stagecoach Road; old railroad grade is used by hikers, ORV's and hunters.
Distance to Nearest Road: Site is bounded on the north by Stagecoach Road; rural roads occur on adjoining uplands to both east and west of the floodplain.
Potential for Habitat Loss or Fragmentation: Moderate; Corps lands are subject to periodic timbering; clearing for wildlife food plots is a frequently used management tool of NCWRC, which leases this area as gameland.
Potential for Changes in Adjoining Land Use: Uplands adjoining the floodplain are still mostly rural but are likely to be intensively developed.

Species Records:

Didelphis virginiana (92-04-10/t)
Scalopus aquaticus (92-06-18/s)
Scalopus aquaticus (94-02-13/s)
Sciurus carolinensis (92-04-10/t)
Sciurus carolinensis (92-06-18/t)
Sciurus carolinensis (94-02-13/n)
Castor canadensis (92-06-18/s)
Peromyscus leucopus (92-06-18/t)
Ochrotomys nuttalli (94-02-13/n)
Ondatra zibethicus (92-06-18/t)
Canis familiaris (92-06-18/t)
Procyon lotor (92-04-10/t)
Procyon lotor (92-06-18/t)
Odocoileus virginianus (92-04-10/t)
Odocoileus virginianus (92-06-18/o)
Odocoileus virginianus (94-02-13/s)
Butorides striatus (92-06-18/o)
Buteo lineatus (92-06-18/o)
Buteo lineatus (94-02-06/o)
Colinus virginianus (92-06-18/t)
Coccyzus americanus (92-06-18/o)
Strix varia (92-06-18/t)
Melanerpes erythrocephalus (92-04-10/o)
Melanerpes carolinus (92-04-10/o)
Melanerpes carolinus (92-06-18/o)
Melanerpes carolinus (94-02-13/o)
Sphyrapicus varius (94-02-13/o)
Picoides pubescens (92-04-10/o)
Picoides pubescens (92-06-18/o)
Picoides pubescens (94-02-13/o)
Picoides villosus (92-06-18/o)
Colaptes auratus (94-02-13/o)
Dryocopus pileatus (94-02-13/s)
Empidonax virescens (92-06-18/o)
Myiarchus crinitus (92-06-18/o)
Cyanocitta cristata (92-06-18/o)
Cyanocitta cristata (94-02-13/o)
Corvus brachyrhynchos (92-06-18/o)
Parus carolinensis (92-04-10/o)
Parus carolinensis (92-06-18/o)
Parus carolinensis (94-02-13/o)
Parus bicolor (92-04-10/o)
Parus bicolor (92-06-18/o)
Parus bicolor (94-02-13/o)
Sitta carolinensis (92-04-10/o)
Sitta carolinensis (92-06-18/o)
Sitta carolinensis (94-02-13/o)
Thryothorus ludovicianus (92-04-10/o)
Thryothorus ludovicianus (92-06-18/o)
Thryothorus ludovicianus (94-02-13/o)
Regulus satrapa (94-02-13/o)
Regulus calendula (94-02-13/o)
Polioptila caerulea (92-04-10/o)
Polioptila caerulea (92-06-18/o)
Hylocichla mustelina (92-06-18/o)
Vireo flavifrons (92-06-18/o)
Vireo olivaceus (92-06-18/o)
Parula americana (92-04-10/o)
Parula americana (92-06-18/o)
Dendroica dominica (92-04-10/o)
Dendroica pinus (92-06-18/o)
Setophaga ruticilla (92-06-18/o)
Protonotaria citrea (92-06-18/o)
Seiurus aurocapillus (92-06-18/o)
Seiurus motacilla (92-04-10/o)
Wilsonia citrina (92-06-18/o)
Piranga olivacea (92-06-18/o)
Cardinalis cardinalis (92-06-18/o)
Pipilo erythrophthalmus (92-06-18/o)
Quiscalus quiscula (92-06-18/o)
Carduelis tristis (92-06-18/o)
Trachemys scripta (92-06-18/o)
Bufo americanus (92-04-10/o)
Bufo woodhousei (92-06-18/o)
Hyla chrysoscelis (92-06-18/o)
Pseudacris triseriata (94-02-13/o)
Rana clamitans (92-04-10/o)
Rana clamitans (92-06-18/o)
Rana clamitans (94-02-13/l)
Erynnis juvenalis (92-04-10/o)
Papilio glaucus (92-04-10/o)
Papilio glaucus (92-06-18/o)
Anthocharis midea (92-04-10/o)
Celastrina ladon (92-04-10/o)
Actias luna (92-06-18/t)
Dromogomphus spinosus (92-06-18/o)
Epiaeschna heros (92-06-18/o)
Erythemis simplicicollis (92-06-18/o)
Libellula incesta (92-06-18/o)
Libellula vibrans (92-06-18/o)
Pachydiplax longipennis (92-06-18/o)

Additional Survey Needs:

Survey of terrestrial species is relatively complete. Evidence for bobcat and marsh rabbit should still be sought.

III. Aquatic Habitats

NHP Element Species:

None recorded

Regionally Rare Species:

Centrarchus macropterus
Enneacanthus gloriosus
Etheostoma fusiforme

Indicator Guilds:

Water Quality Sensitive Species:	WQ-degradation Tolerant Species:	Invading Species:
None recorded	*Cyprinus carpio* *Gambusia affinis holbrooki*	*Cyprinus carpio* *Pomoxis annularis*

Habitat Features:

Lotic/Lentic: Perennial stream with intermittent tributaries; old oxbows are filled with water year-round; abandoned farm pond observed on uplands adjacent to railroad grade.
Depth/Width: Waist-deep at normal flow level; 25' to 30' wide
Flow Rate: Creek is slow and meandering.
Water Quality/Clarity: Usually turbid
Bank Condition: Mostly intact
Insolation: Channel is wide enough to allow some light penetration.
Substrate(s): Sand and silt
Emergent Vegetation: None
Woody Debris: Moderate amount of logs observed in the channel.
Other Shelter: Negligible

Landscape Features:

Stream Classification: 3rd order small river (5-25 m)
Connections to Other Intact Reaches: Third Fork Creek enters the New Hope just downstream from NC 54.
Integrity of Adjoining Forests: Good

Threats and Disturbances:

DEM Water Quality Ratings: Poor both Biologically and Chemically (DEM, 1985)
Sources of Pollution: Farrington Wastewater Treatment Plant (City of Durham)
Barriers to Migration: Jordan Lake downstream; culvert and flood-control structure at Stagecoach Road; bridge crossings at I-40 and NC 54; subimpoundment upstream from NC 54
Potential for Impoundment, Flow Alteration or Draining: Hydrology has been significantly altered due to impounding by Jordan Lake, green-tree reservoirs and causeways at I-40 and NC 54; flooding across the entire floodplain appears to be fairly frequent during the winter.

Species Records:

Castor canadensis (92-06-18/s)
Ondatra zibethicus (92-06-18/t)
Trachemys scripta (92-06-18/o)
Rana clamitans (92-04-10/o)
Rana clamitans (92-06-18/o)
Rana clamitans (94-02-13/l)
Esox americanus (MENH)
Cyprinus carpio (92-06-18/o)
Semotilus atromaculatus (MENH)
Erimyzon oblongus (MENH)
Gambusia affinis holbrooki (92-04-10/o)
Centrarchus macropterus (MENH)
Pomoxis annularis (MENH)
Enneacanthus gloriosus (MENH)
Lepomis macrochirus (MENH)
Lepomis gibbosus (MENH)
Etheostoma fusiforme (MENH)
Dromogomphus spinosus (92-06-18/o)
Epiaeschna heros (92-06-18/o)
Erythemis simplicicollis (92-06-18/o)
Libellula incesta (92-06-18/o)
Libellula vibrans (92-06-18/o)
Pachydiplax longipennis (92-06-18/o)

Additional Survey Needs:

A survey of both the stream species and swamp/pool species is needed to assess the effects of flooding from Jordan Lake.

BOTANICAL SURVEY REPORT

SITE NAME: Stagecoach Road Bottomlands (New)

County:	Durham
Quad:	Southwest Durham, Greenlevel
Acreage:	760
Province:	Piedmont
Significance:	1 - County
Integrity:	3 - High
Landscape Value:	No Special Merit
Threat Status:	2 - Low
Ownership:	Corps of Engineers

Summary List of Special Plant Species: None known

Significant Features: Although flooded from the south when Jordan Lake is above its normal level, the floodplain forest is mostly intact.

Priorities and Further Investigation Needed: No extensive plant list exists.

Reconnaissance Dates: Cursory visits from 1976 through 1996.

Surveyors: Jim and Liz Pullman

Location: All of the Corps land south of Stagecoach Road (CR1107) to Chatham County.

Access to Site: Park at bridge over creek and walk south if water levels permit, otherwise walk down the old railroad bed just east of the creek.

Physical and Biological Description

Slope: Various
Grade: Flat to 10%
Topo Position: South of Stagecoach Road along New Hope Creek.
Elevation: 220' - 240'
Hydrology: Wet
Watershed: New Hope Creek - Jordan Lake - Cape Fear River
Soil: Chewacla, Wedkahee in floodplain, low slopes mainly White Store sandy loam with smaller of Creedmoor and Mayodan sandy loam and Roanoke and Altavista silt loam.

Natural Community: Piedmont Bottomland Forest

Plant Community Types: 1. Piedmont Bottomland Forest:
mixed bottomland hardwoods/
mixed subcanopy and shrubs/
sparse mixed herbs and aquatics

Description of Flora: See Site Description

Plant Species List: Stagecoach Road Bottomlands, New

CANOPY
Acer rubrum
Acer saccharum spp. floridanum
Betula nigra
Carya spp.
Liquidambar styraciflua
Liriodendron tulipifera
Pinus taeda
Quercus lyrata
Quercus phellos
Quercus michauxii
Ulmus spp.

SUBCANOPY, SHRUBS, VINES
Arundinaria gigantea
Cratageus viridis
Ilex spp.
Ligustrum sinense

HERBS
Arisaema triphyllum
Claytonia virginica
Cypripedium acaule
Erythronium umbilicatum
Peltandra virginica
Saururus cernuus
Sagittaria latifolia
Viola primulifolia